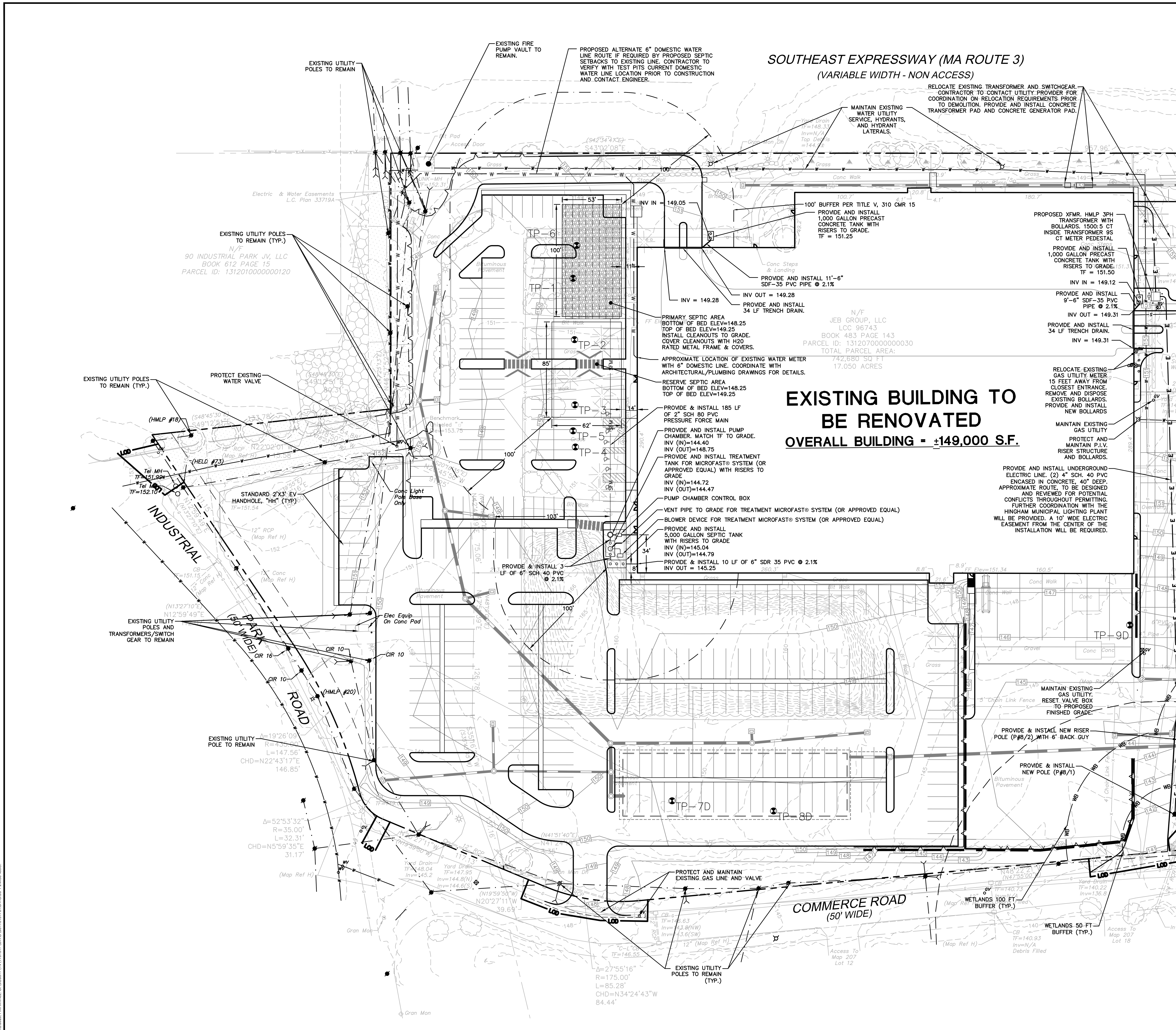

SITE UTILITIES LEGEND

PROPERTY LINE	
LIMIT OF DISTURBANCE LINE AND CONTRACT LIMIT LINE	LOD
50' AND 100' WETLAND BUFFERS	WB WB
ZONE A SURFACE WATER SUPPLY PROTECTION AREA BOUNDARY FROM MASSGIS DATA	
100' BUFFER PER TITLE V, 310 CMR 15	
ELECTRIC LINE	E E
ELECTRIC AND TELECOMMUNICATIONS LINES	E/T
GAS LINE	G G
WATER LINE	W W
SANITARY SEWER LINE	S
SANITARY SEWER FORCE MAIN	SFM
OVERHEAD LINE	OH OH
TRANSFORMER	T
HYDRANT	
UTILITY POLE	
SANITARY MANHOLE	
SANITARY CLEANOUT	CO
WATER VALVE	WV
GATE VALVE	GV
THRUST BLOCK	
GREASE TRAP	
OUTLET CONTROL STRUCTURE	
HYDRODYNAMIC SEPARATOR	
STORM LINE	
CATCH BASIN	
STORM MANHOLE	
PRECAST CONCRETE TANK	

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

SEE SHEET GN-1 FOR SITEWORK NOTES

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COMMONWEALTH OF MASSACHUSETTS
ROBERT M. ROLES
CIVIL
No. 54612
REGISTERED PROFESSIONAL ENGINEER

PROPOSED DEVELOPMENT
100 INDUSTRIAL PARK ROAD
HINGHAM, MASSACHUSETTS

REVISIONS

No.	Date	Desc.
1.	05/12/2020	Revised per Staff and Commission Comments
3.	07/13/2020	Revised per Planning and Peer Review Comments
4.	07/27/2020	Revised per Conservation Commission Comments
5.	08/11/2020	Revised per Detailed Septic System Design

Designed	P.G.M.
Drawn	P.G.M.
Reviewed	K.W.H.
Scale	1"=40'
Project No.	1901517
Date	03/06/2020
CAD File:	SU190151701

Title
SITE UTILITIES PLAN

Sheet No.
SU-1

Xref (s): ; BD190151701 ; XY190151701 ; XC190151701 ; XL190151701 ; XC190151702 ; XC190151703 ; XE190151701

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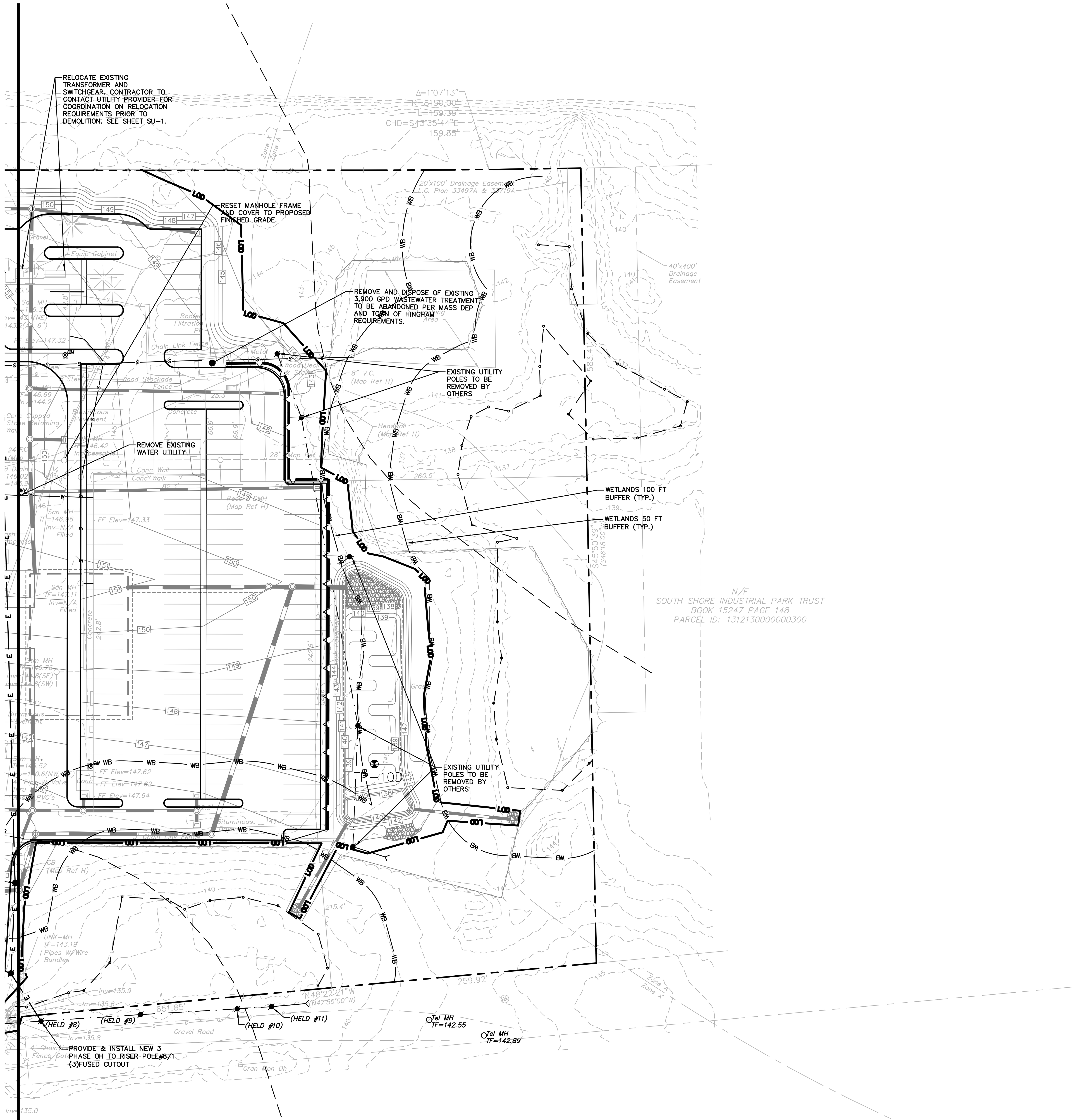
Layout: SU-1 24X36 40SC



SITE UTILITIES LEGEND

- PROPERTY LINE
- LIMIT OF DISTURBANCE LINE AND CONTRACT LIMIT LINE — LOD
- 50' AND 100' WETLAND BUFFERS — WB WB
- ZONE A SURFACE WATER SUPPLY PROTECTION AREA BOUNDARY FROM MASSGIS DATA
- 100' BUFFER PER TITLE V, 310 CMR 15
- ELECTRIC LINE — E E
- ELECTRIC AND TELECOMMUNICATIONS LINES — E/T
- GAS LINE — G G
- WATER LINE — W W
- SANITARY SEWER LINE — S
- SANITARY SEWER FORCE MAIN — SFM
- OVERHEAD LINE — OH OH
- TRANSFORMER — T
- HYDRANT
- UTILITY POLE
- SANITARY MANHOLE
- SANITARY CLEANOUT — CO
- WATER VALVE — WV
- GATE VALVE — GV
- THRUST BLOCK
- GREASE TRAP
- OUTLET CONTROL STRUCTURE
- HYDRODYNAMIC SEPARATOR
- STORM LINE
- CATCH BASIN
- STORM MANHOLE
- FLARED END
- END WALL OR HEADWALL
- PRECAST CONCRETE TANK

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

SEE SHEET GN-1 FOR SITEWORK GENERAL NOTES

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PROPOSED DEVELOPMENT
100 INDUSTRIAL PARK ROAD
HINGHAM, MASSACHUSETTS

REVISIONS

No.	Date	Desc.
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Designed	P.G.M.
Drawn	P.G.M.
Reviewed	K.W.H.
Scale	1"=40'
Project No.	1901517
Date	03/06/2020
CAD File:	SU190151701

Title
SITE UTILITIES PLAN

Sheet No.
SU-2

Xref (s): ; BD190151701 ; XY190151701 ; XC190151701 ; XL190151701 ; XC190151702 ; XC190151703 ; XE190151701

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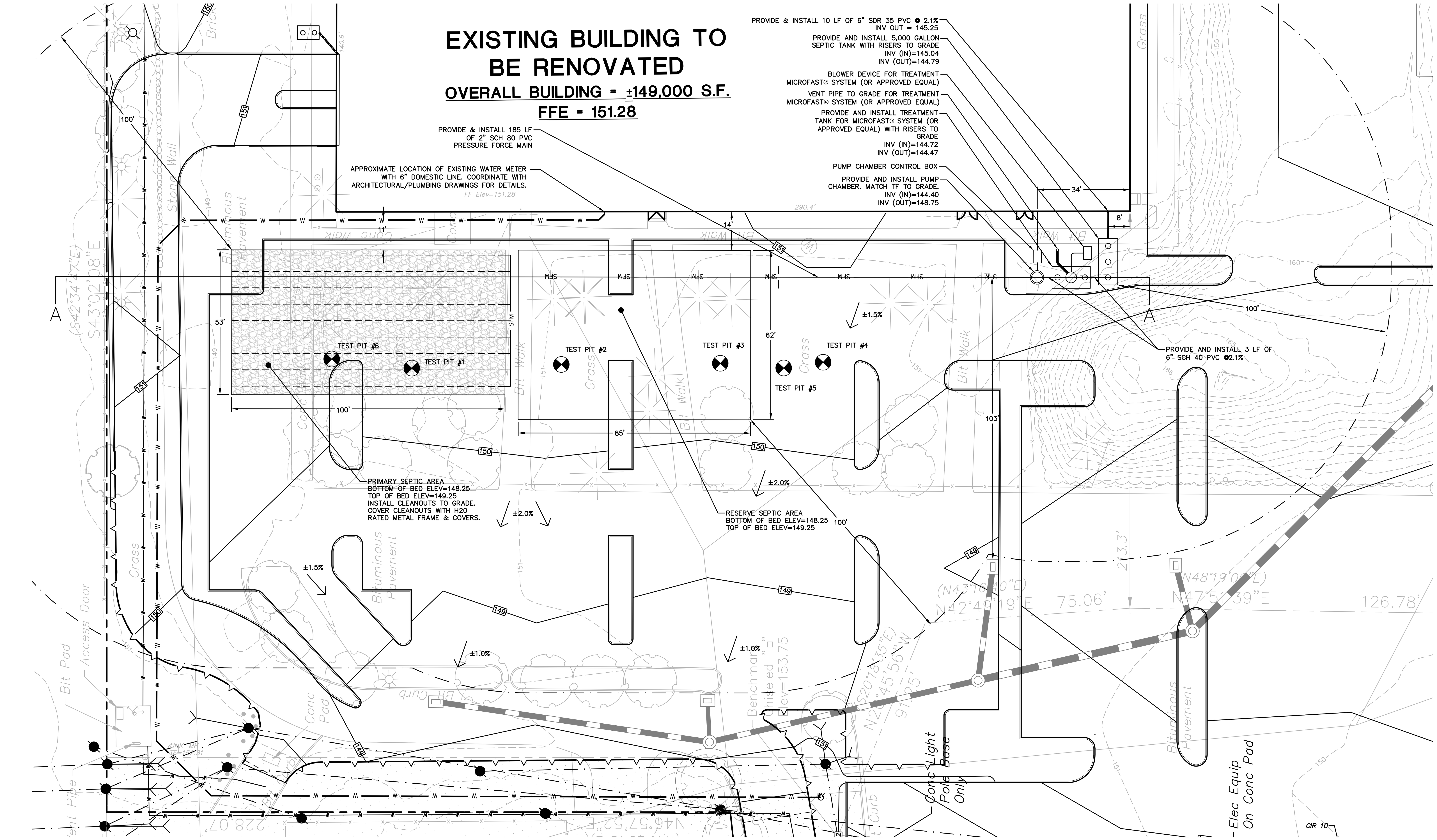


SITE UTILITIES LEGEND

- PROPERTY LINE
- LIMIT OF DISTURBANCE LINE AND CONTRACT LIMIT LINE — LOD
- 50' AND 100' WETLAND BUFFERS — WB
- ZONE A SURFACE WATER SUPPLY PROTECTION AREA BOUNDARY FROM MASSGIS DATA
- 100' BUFFER PER TITLE V, 310 CMR 15
- ELECTRIC LINE — E
- ELECTRIC AND TELECOMMUNICATIONS LINES — E/T
- GAS LINE — G
- WATER LINE — W
- SANITARY SEWER LINE — S
- SANITARY SEWER FORCE MAIN — SFM
- OVERHEAD LINE — OH
- TRANSFORMER
- HYDRANT
- UTILITY POLE
- SANITARY MANHOLE
- SANITARY CLEANOUT — CO
- WATER VALVE — WV
- GATE VALVE — GV
- THRUST BLOCK
- GREASE TRAP
- OUTLET CONTROL STRUCTURE
- HYDRODYNAMIC SEPARATOR
- STORM LINE
- CATCH BASIN
- STORM MANHOLE
- PRECAST CONCRETE TANK

SEPTIC DESIGN

USE: FACTORY, INDUSTRIAL PLANT, WAREHOUSE OR DRY STORAGE SPACE WITHOUT CAFETERIA

DESIGN RATE: 15 GALLONS PER DAY, PER PERSON
200 EMPLOYEES

DESIGN FLOW: 200 EMPLOYEES X 15 GPD = 3,000 GPD

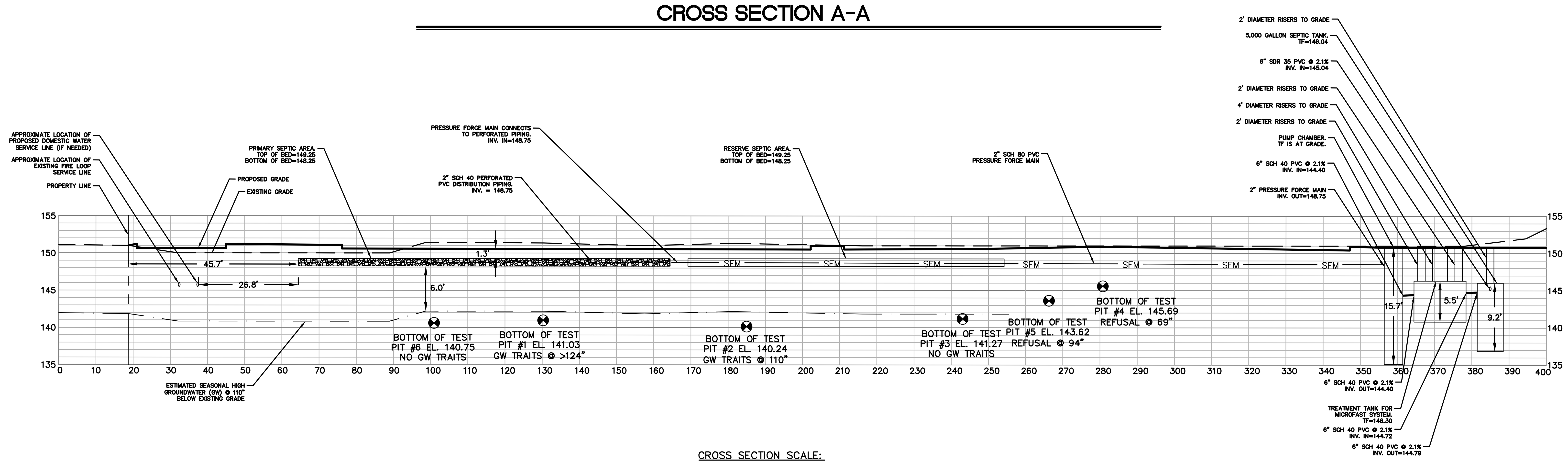
WATER USAGE DATA:1,127 GPD
(102,500 GALLONS / 91 DAYS = 1,127GPD)

USE 3,900 GPD (EXISTING SYSTEM CAPACITY)

LTAR–EFFLUENT LOADING RATE:
CLASS I WITH PERC RATE @ < 2 MIN/INCH
3,900 GPD / 0.74 GPD/SF = 5,271 SF

PROVIDE STONE & PIPE LEACHING BED
PRESSURE DISTRIBUTION 2" SCH. 40 PERFORATED PVC PIPE
MIN. 6" STONE UNDER PIPE INVERTS

CROSS SECTION A-A



CROSS SECTION SCALE:

VERTICAL: 1"=10'
HORIZONTAL: 1"=20'

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

SEE SHEET GN-1 FOR SITEWORK NOTES

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REGISTERED PROFESSIONAL ENGINEER

PROPOSED DEVELOPMENT
100 INDUSTRIAL PARK ROAD
HINGHAM, MASSACHUSETTS

REVISIONS
No. Date Desc.

Designed	A.T.K.
Drawn	A.T.K.
Reviewed	R.M.R.
Scale	1"=20'
Project No.	1901517
Date	08/11/2020
CAD File:	SU190151701

Title
SITE UTILITIES PLAN

Sheet No.
SU-3

Xref (s): ; BD190151701 ; XY190151701 ; XC190151701 ; XL190151701 ; XC190151702 ; XC190151703 ; XE190151701

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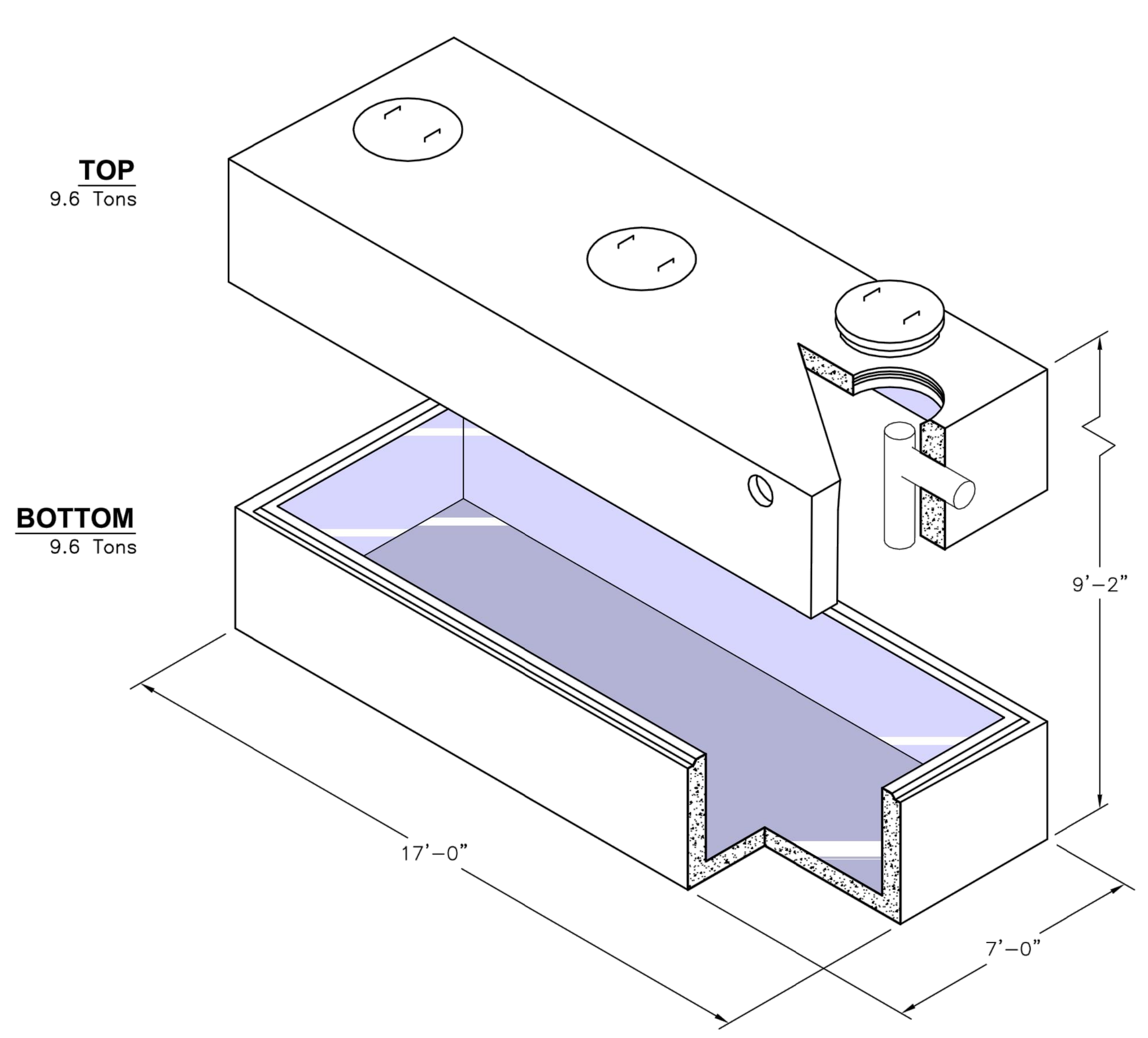
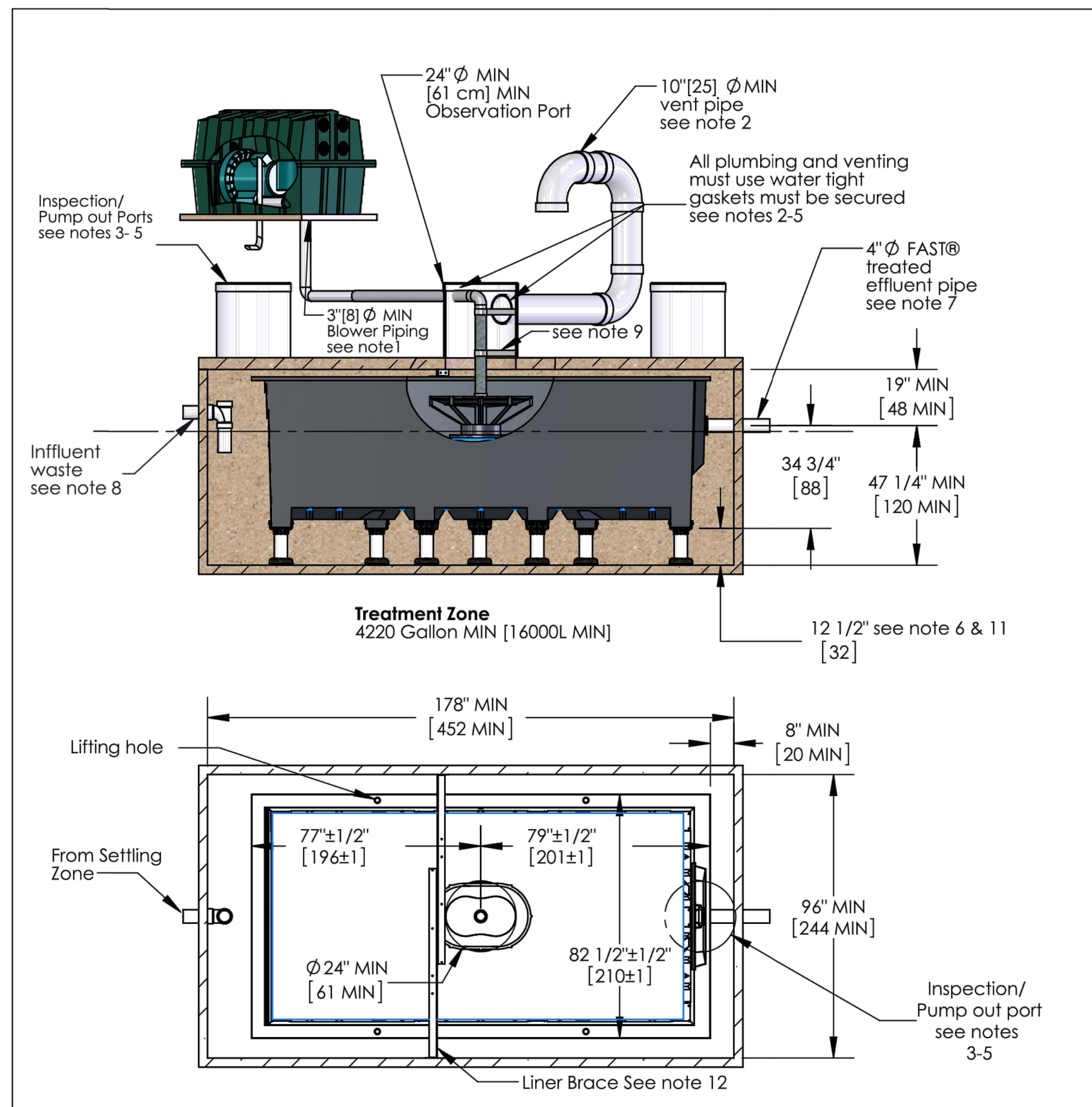
Layout: SU-3 24X36 20SC

Water

6'-0" x 16'-0" x 8'-0" I.D.
Septic Tank
5,000 Gallon Capacity
Model: CST-5000-1



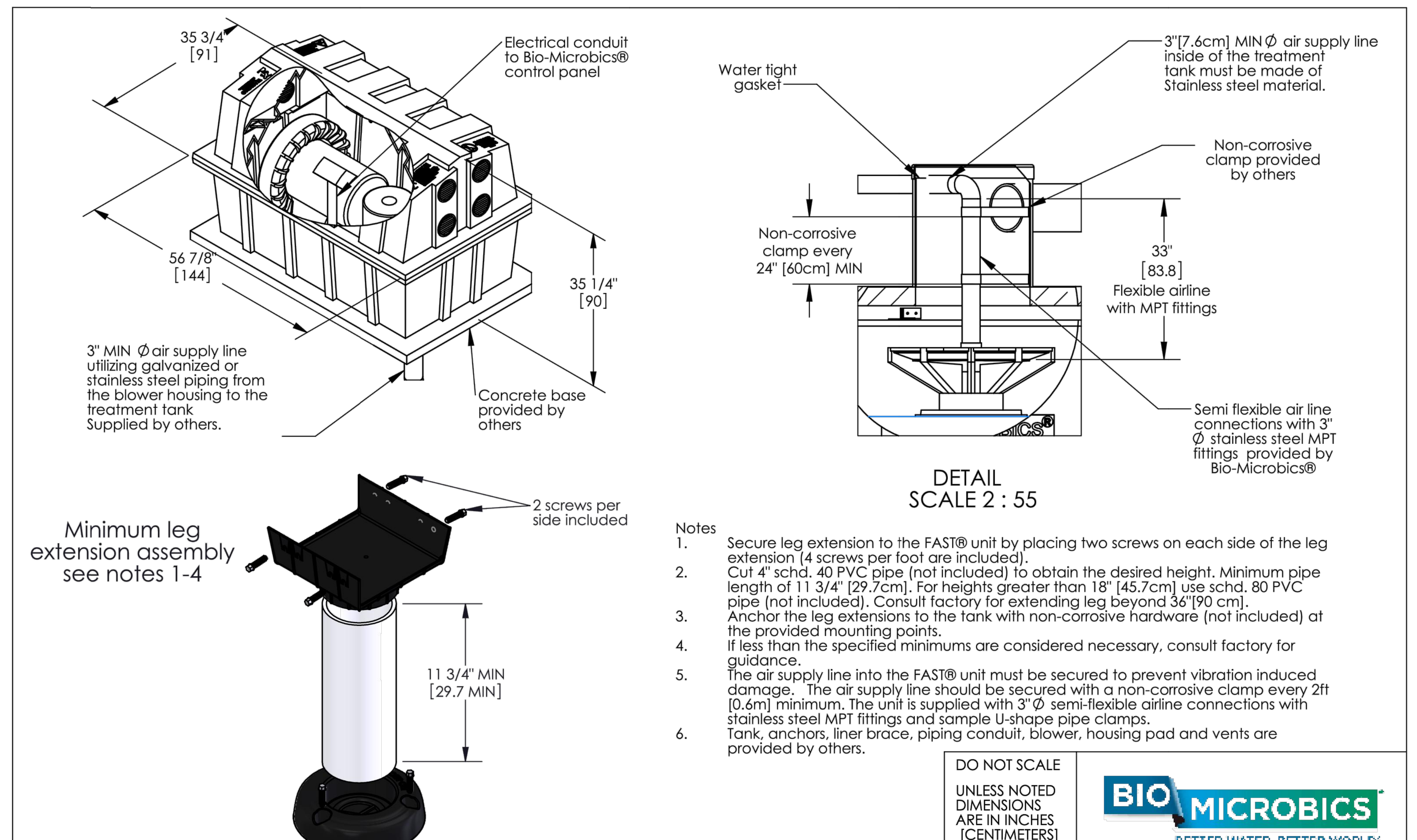


NOTES
1. Airline piping to FAST® may not exceed 100 FT [30m] total length and have a maximum of 4 elbows in the piping system. For distances greater than 100 FT [30m] consult factory. Blower must be located above flood levels on a concrete base 57" X 36" X 2.5" [150 X 90 X 7cm] minimum.
2. Vent to desired location and cover opening with a vent grate with at least 20 sq in.[125 sq. cm] open surface area. Secure with stainless steel screws. Vent piping must not allow condensate build up or create back pressure. Vent must be above finished grade or higher (see sheet 3 of 3).
3. All appurtenances to FAST® (e.g. tanks, access ports, electrical, etc.) must conform to all applicable country, state, province, and local plumbing and electrical codes. Pump out access shall be adequate to thoroughly clean out both zones.
4. All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access.
5. Tank, piping, conduit, etc. are provided by others. Blower control system by Bio-Microbics, Inc. See Installation Manual.
6. If less than the specified minimums are considered necessary, consult factory for guidance.
7. All piping and ancillary equipment installed after FAST must not impede or restrict free flow of effluent.
8. The tank(s) shall be designed to prevent air passage between the settling zone/tank and the treatment zone and preventing an air lock. Examples include a baffle wall sealed to the lid or treatment zone inlet line with a pipe cap. Consult factory for guidance.
9. The air supply line into the FAST® unit must be secured to prevent vibration induced damage. The air supply line should be secured with a non-corrosive clamp every 2' min [60 cm]. See alternate air supply option on sheet 3 of 3.
10. Specialized treatment levels may require specific features to be incorporated into the design. Consult factory for guidance.
11. Refer to sheet 3 of 3 for leg extensions requirements.
12. Secure provided support braces to prevent movement.

DO NOT SCALE
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]

BIO MICROBICS
BETTER WATER. BETTER WORLD.
MicroFAST 4.5 FAST Unit

WEIGHT lb	SIZE	DRAWING NUMBER	SHEET
NAME / DATE	A	MicroFAST 4.5 with feet	1 OF 3
DRAWN CTC 5/10/2006		REVISED 12/18/2014 REV. INI-07-W	
CHECKED PF 12/18/2014			



Notes
1. Secure leg extension to the FAST® unit by placing two screws on each side of the leg extension (4 screws per foot are included).
2. Cut 4" schd. 40 PVC pipe (not included) to obtain the desired height. Minimum pipe length of 11 3/4" [29.7cm]. For heights greater than 18" [45.7cm] use schd. 80 PVC pipe (not included). Consult factory for extending leg beyond 36"[90 cm].
3. Anchor the leg extensions to the tank with non-corrosive hardware (not included) at the provided mounting points.
4. If less than the specified minimums are considered necessary, consult factory for guidance.
5. The air supply line into the FAST® unit must be secured to prevent vibration induced damage. The air supply line should be secured with a non-corrosive clamp every 2ft [0.6m] minimum. The unit is supplied with 3"Ø semi-flexible airline connections with stainless steel MPT fittings and sample U-shape pipe clamps.
6. Tank, anchors, liner brace, piping conduit, blower, housing pad and vents are provided by others.

DO NOT SCALE
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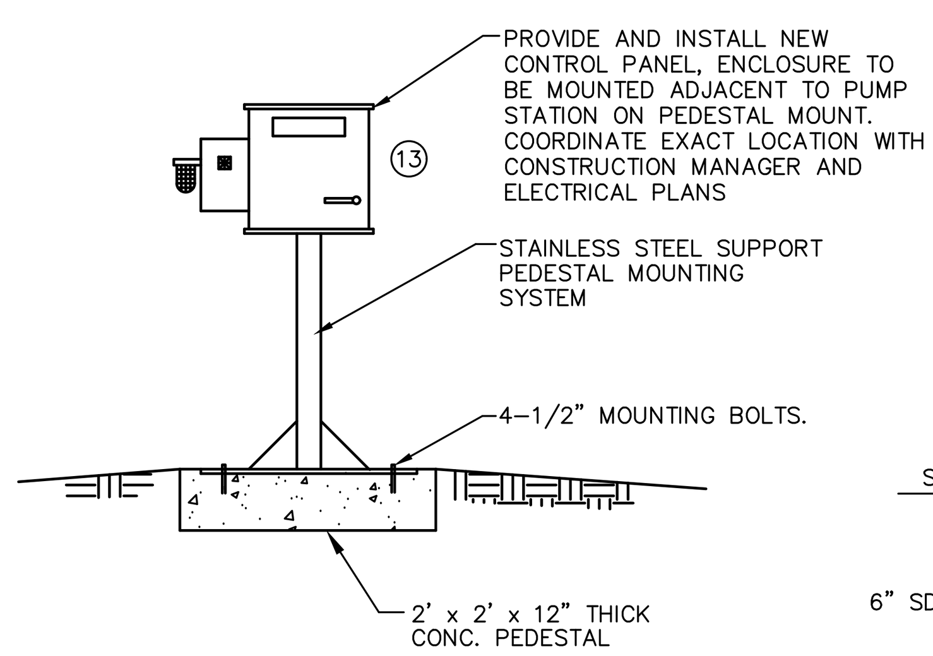
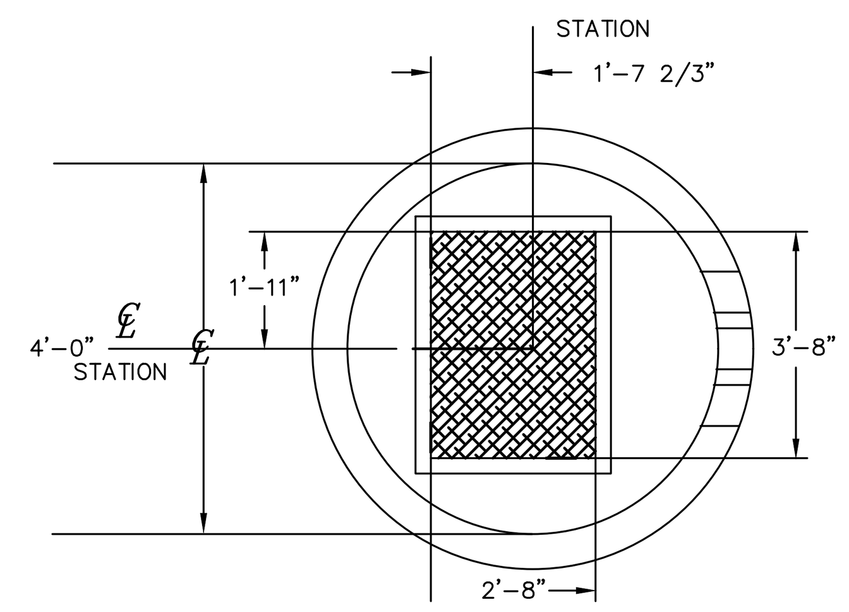
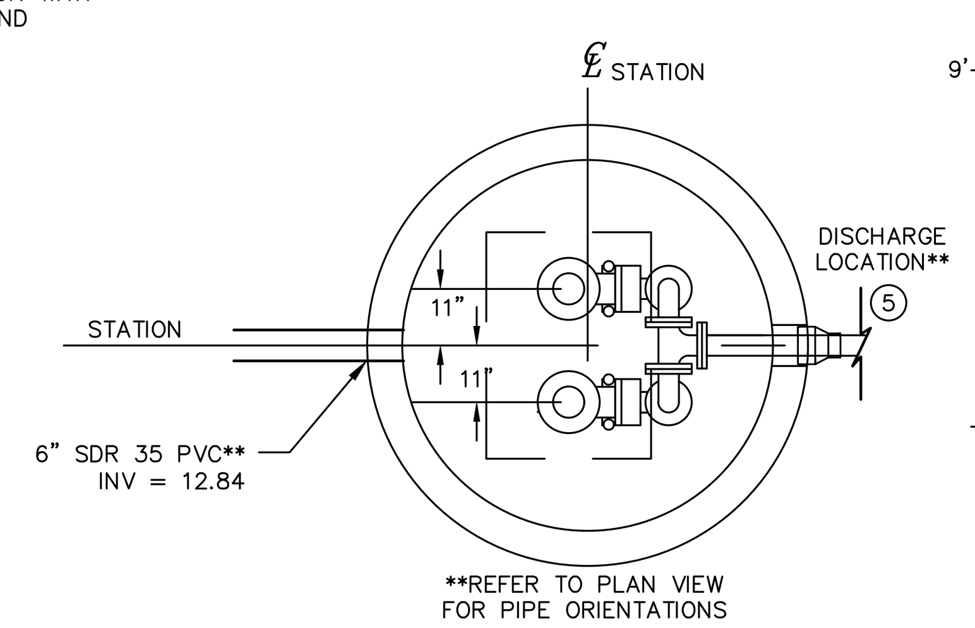
BIO MICROBICS
BETTER WATER. BETTER WORLD.
MicroFAST 4.5 FAST Unit

WEIGHT lb	SIZE	DRAWING NUMBER	SHEET
NAME / DATE	A	MicroFAST 4.5 Details	3 OF 3
DRAWN CTC 5/10/2006		REVISED 12/18/2014 REV. INI-07-W	
CHECKED PF 12/18/2014			

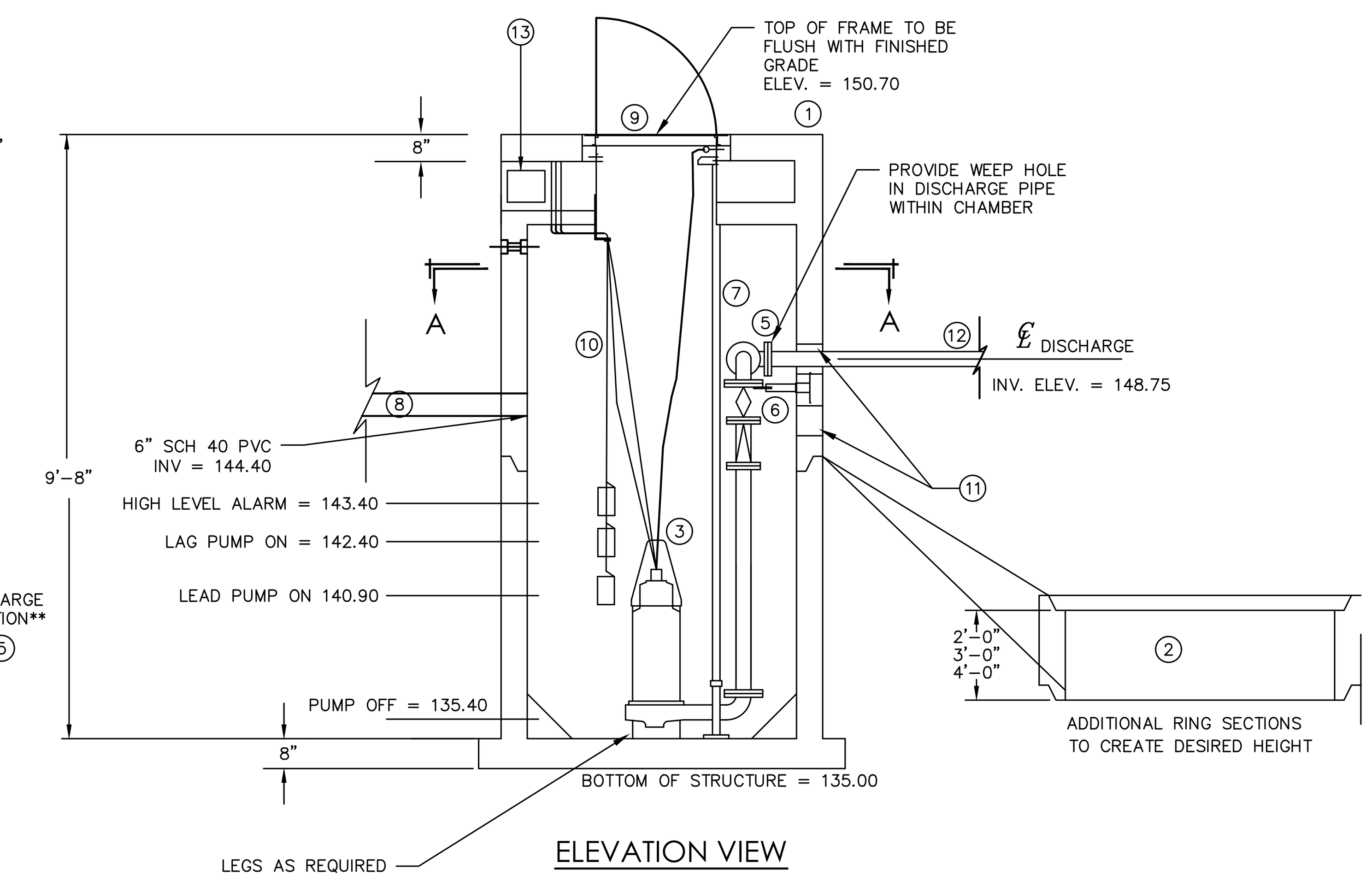




PLAN VIEW



SECTION A-A



ELEVATION VIEW

LEGEND

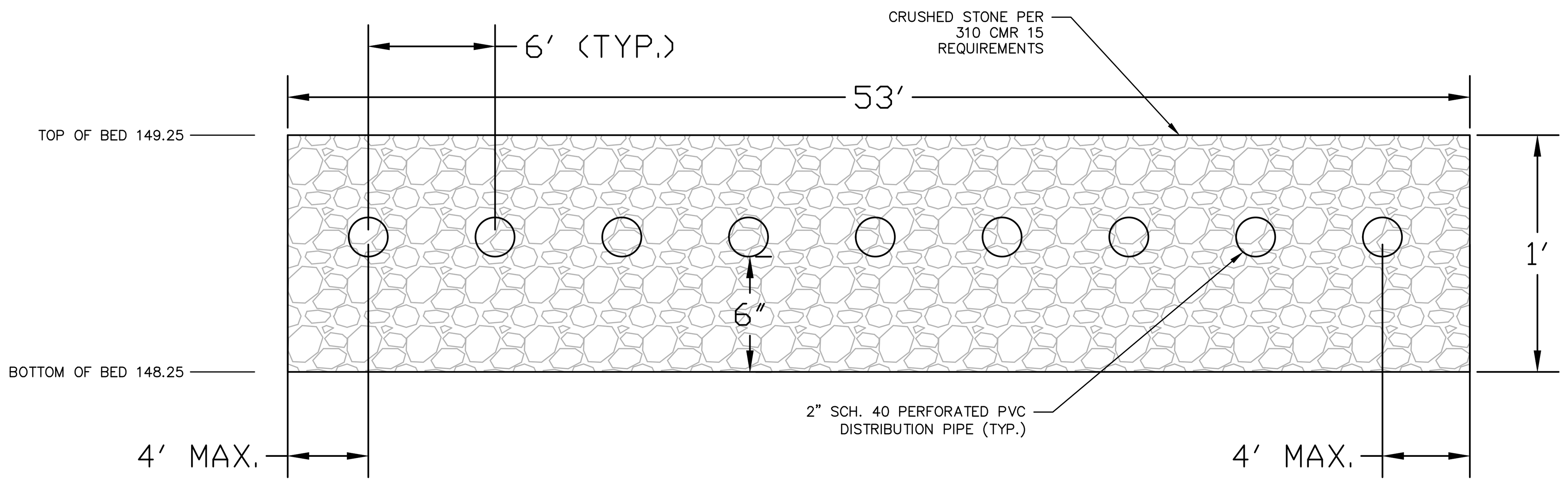
1. 5' DIA. PRECAST PUMP STATION STRUCTURE.
2. 5' DIA. PRECAST PUMP STATION SHIMS, FINAL HEIGHT TBD.
3. DUAL ALTERNATING PUMP. DESIGNED TO DOSE 8 TIMES PER DAY. CONFIRM MODEL WITH ENGINEER PRIOR TO INSTALLATION.
4. A CONTROL PANEL SHALL BE SUPPLIED FOR MOUNTING AT THE PUMP SITE AND REMOTE FROM THE BASIN AS REQUIRED. SHOP DRAWINGS AND SPECIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING EQUIPMENT.
5. 1 1/2" PVC SCH 80 DISCHARGE PIPING WITH PVC SCH 80 FITTINGS AND 1 1/2" GATE VALVE.
6. 1 1/2" DUPLEX DISCHARGE KIT SUPPLIED BY HOMA AND 2" SCH. 40 PVC CHECK VALVE.
7. STAINLESS STEEL PUMP REMOVAL GUIDE RAILS AS SUPPLIED BY CENTRIPRO.
8. 6" INLET PIPE.
9. 2'-8" X 3'-8" ALUMINUM PUMP ACCESS HATCH. QUALIFIED FOR H20 LOADING.
10. ADJUSTABLE POLYPROPYLENE LEVEL CONTROL FLOAT SWITCHES.
11. LINK SEAL (FOR EACH PIPE LEAVING OR ENTERING MANHOLE AND VALVE VAULT).
12. 1 1/2" SDR 9 PIPING.

**EDGE OF INLET PIPE CAN BE NO CLOSER THAN 8" FROM A STRUCTURAL JOINT

13. CONTROL BOX. FINAL DESIGN TBD. CONFIRM MODEL WITH ENGINEER PRIOR TO INSTALLATION.

5' DIAMETER MANHOLE DUPLEX PUMP STATION

N.T.S.



LEACHING BED CONFIGURATION

N.T.S.

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HINGHAM, MASSACHUSETTS

REVISIONS		
No.	Date	Desc.

Designed	A.T.K.
Drawn	A.T.K.
Reviewed	R.M.R.
Scale	NONE
Project No.	1901517
Date	08/11/2020
CAD File:	DN190151701

Title
DETAIL SHEET

Sheet No.
DN-7

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Xref (s): : BD190151701

8/13/2020, PMARTINEZ, G:\JOBS19\14\1901517\DWG\DN190151701.DWG,DN-7 24 X 36 N.T.S..